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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,599	06/23/2003	Chin-Wei Ho	0941-0760P	5491

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EXAMINER

BUI, HUNG S

ART UNIT

PAPER NUMBER

2841

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/600,599

Applicant(s)

HO, CHIN-WEI

Examiner

Hung S Bui

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Pfizenmayer et al. [US 5,751,555].

Regarding claim 1, Pfizenmayer et al. disclose a printed circuit board assembly (figure 2) comprising:

- a first board (11) containing a first circuit (13); and
- a second board (12) smaller than the first board and disposed on the first board, wherein the second board contains a second circuit (14, column 2, line 32) electrically connected to the first circuit.

3. Claim 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Boggs [US 4,935,584].

Regarding claim 3, Boggs discloses a printed circuit board assembly (figure 2) comprising:

- a first circuit board (10) including first and second opposing surfaces;
- a second circuit board (20) smaller than the first circuit board disposed on the first surface thereof and connected thereto; and

- a third circuit board (30) smaller than the first circuit board disposed on the second surface thereof and connected thereto.

Regarding claim 4, Boggs discloses the second board being as large as the third circuit board (figure 2).

4. Claims 7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Harju [US 6,333,856].

Regarding claim 7, Harju discloses a multiplayer printed circuit board (figure 4) having different regions with different heights and plurality of electronic component (7 and 21) on the printed circuit board, wherein the electronic components have different thickness and the component with the greatest thickness is mounted on the region of the printed circuit board with the least height.

Regarding claim 11, Harju discloses the different regions of the printed circuit board with the different heights arranged in stepped form.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pfizenmayer et al. in view of Val [US 5,237,204].

Regarding claim 2, Pfizenmayer et al. disclose the instant claimed invention except for the second board defining at least one cavity with the first board.

Val discloses a first board (11) having a second board (12) disposed thereon and defining at least one cavity (figure 3a) with the first board.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a cavity on the second board of Pfizenmayer et al., as suggested by Val, for the purpose of facilitating component connection to the first board.

7. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boggs in view of Val.

Regarding claim 5, Boggs disclose the instant claimed invention except for the second circuit board defining at least one cavity with the first circuit board.

Val discloses a second circuit board (12) defining at least one cavity (figure 1a) with a first circuit board (11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a cavity on the second board of Boggs, as suggested by Val, for the purpose of facilitating component connection to the first board.

Regarding claim 6, Boggs disclose the instant claimed invention except for the third circuit board defining at least one cavity with the first circuit board.

Val discloses a circuit board defining at least one cavity (figure 1a) with another circuit board.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a cavity on the third board of Boggs, as suggested by Val, for the purpose of facilitating component connection to the first board.

8. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harju in view of applicant's prior art shown in figure 1b (hereinafter, AAPA).

Regarding claim 8, Harju discloses the instant claimed invention except for a cover covering the printed circuit board and electronic components without interference with the electronic components.

AAPA discloses an electromagnetic interference shielding cover (108) covering a printed circuit board (102) and electronic components (104, 106) without interference with the electronic components (figure 1b).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the cover of AAPA with the printed circuit board of Harju, for the purpose of protecting the electronic components from electromagnetic interference.

Regarding claims 9-10, AAPA further discloses the cover including a protrusion (110) extending toward the printed circuit board (102) located above the electronic components (104) with the least thickness.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further include the protrusion on the cover of Harju, as modified by AAPA, for the purpose of maintaining the component with the least thickness in position.

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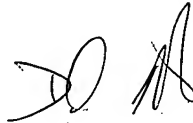
Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung S Bui whose telephone number is (703) 305-8024.

The examiner can normally be reached on Monday-Friday 8:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David S Martin can be reached on (703) 308-3121. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-5115.



12/12/03
HB

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